

[54] **RECONSTITUTED-TOBACCO SMOKING MATERIALS**

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[58] **Field of Search** **131/2, 17, 15, 140-144**

[56] **References Cited**

UNITED STATES PATENTS

1,462,480	7/1923	Bosse	131/17 R
2,809,904	10/1957	Koree	131/2
3,477,865	11/1969	Armbrust et al.	131/17 R

3,025,860	3/1962	Grossteinbeck et al.	131/140 C
3,203,432	8/1965	Green et al.	131/140 C
3,106,210	10/1963	Reynolds et al.	131/17

FOREIGN PATENTS OR APPLICATIONS

903,067	8/1962	Great Britain	131/17 R
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[57] **ABSTRACT**

A smoking material comprises a tobacco component consisting of or comprising a combustible reconstituted tobacco of a type which consists solely or essentially of natural tobacco substances, which smoking material contains more than 10 percent by weight of a filler intimately incorporated therein and consisting solely or substantially solely of chalk. The carbonate addition is applied in the particulate form and of a particle size less than 150 microns. Adhesion between the carbonate and the tobacco is effected by substances released by the tobacco, per se. The reconstituted tobacco may contain added tobacco extract as well as tobacco solids.

1 Claim, No Drawings

RECONSTITUTED-TOBACCO SMOKING MATERIALS

This invention concerns improvements relating to reconstituted-tobacco smoking materials.

According to the invention, a smoking material comprises a tobacco component consisting of or comprising a combustible reconstituted tobacco of a type which consists solely or essentially of natural tobacco substances, which smoking material contains more than 10 percent by weight of a filler intimately incorporated therein and consisting solely or substantially solely of chalk (calcium carbonate). Advantageously, the filler is added to the tobacco component before it is made into sheet filament or like form. Generally the filler will

stages. In a second series, B, the solubles comprised only residual solubles remaining in the fibre. For the impregnation, the extract obtained as aforesaid was concentrated in a climbing-film evaporator to a solids concentration of 29 percent.

The sheet was shredded to a form smokable in cigarettes and cigarettes prepared from the shreds were smoked on a conventional machine at 1 puff per minute of 35 ml volume and 2 seconds duration. The cigarette dimensions were length 70 mm and circumference 25 mm. The cigarette weight was $1,100 \pm 40$ mg for series A and 930 ± 50 mg for series B.

Analysis of the smoke for a variety of compositions of the reconstituted tobacco gave the following results for the total particulate matter in the smoke:

Series	Composition, percent			Pressure drop in cigarette (mm. water gauge)	Total particulate matter	
	Tobacco	Filler	Tobacco solubles		Per cigarette in mg.	Percent reduction
A	50.3	0	49.7	37	12.9	-----
	39.0	10.1	50.9	50	9.6	25.6
	37.7	12.5	49.8	49	9.1	29.5
	35.5	14.6	49.9	51	6.9	46.5
B	85	0	15.0	47	29.0	-----
	75.2	11.5	13.3	39	24.5	15.5
	69.7	18.0	12.3	43	21.4	26.2
	65.6	22.8	11.6	42	21.2	26.9

constitute not more than 50 percent by weight of the smoking material. The particle size of the chalk powder is preferably less than 150 microns.

Reconstituted tobaccos of the type set forth are characterized essentially by the absence of extraneous adhesives, binding being achieved by substances of, or released from, natural tobacco. Such reconstituted tobaccos are also to be distinguished from those in which the originating material is pulped chemically, using nitric acid or caustic soda for example.

Examples of ways of carrying the invention into effect will now be more fully described:

A first Example illustrates the application of the invention to a reconstituted tobacco of the kind sometimes known as paper reconstituted tobacco, in which an aqueous slurry of tobacco solids is formed into a continuous web on a Fourdrinier-type machine. In this example, the reconstituted tobacco was prepared in the following manner:

Threshed Burley stem was cooked at 90° – 95° C for three 30 minute periods, with a stem/water ratio of 1 to 10 by weight, followed by draining after each cook. The fibrous residue was then passed through a disc mill at 16.5 percent consistency, the clearance between the plates being 0.035 inches, this being followed by heating in a conventional Valley beater for 20 minutes at 2 percent consistency.

The resultant stock was diluted to 0.6 percent consistency and fed together with finely divided chalk, of which 90 percent was of a size that would pass a 325 British Standard mesh, to the headbox of a conventional Fourdrinier paper-making machine of the tissue-paper forming type. A continuous sheet with a final thickness of 0.13 to 0.23 mm was produced. Because of the low retention of chalk, in relation to fibres, on the Fourdrinier wire, the ratio of chalk to fibres fed to the headbox will generally be two to three times the ratio required in the final sheet material.

Two series of samples of reconstituted tobacco thus prepared were used for tests. In a first series, A, the sheet material was impregnated with concentrated aqueous tobacco solubles extracted in the cooking

In further series of tests, the following results were obtained. For series C, the weight of the cigarettes was 800 mg and the reconstituted tobacco was composed of Virginia stem plus an equal weight of aqueous tobacco-extract solubles. For series D, the weight of the cigarettes was 620 mg and the reconstituted tobacco was composed of Virginia stem without added extract.

Series	Cigarette Composition %		Total Particulate Matter per Cigarette in mg	% Reduction
	Tobacco	Filler		
C	100	0	18.5	0
	90	10	12.2	34
	85	15	12.8	31
D	100	0	25.9	0
	80	20	15.7	39
	70	30	14.3	45

These results show that a reduction in total particulate matter is achieved greater than would be expected from the dilution represented by the content of filler.

For a second Example, chalk was added in various proportions to a reconstituted tobacco produced as a described in U.S. Pat. specification No. 3,202,432, some times known as Batex, in which ground tobacco is extruded under high pressure to form coherent filaments similar to cut tobacco in cross section, the chalk being added to the comminuted tobacco prior to the addition of water and subsequent extrusion. Cigarettes were prepared from 50/50 mixtures of the reconstituted tobacco and flue-cured tobacco blend and were smoked in substantially the manner described above with the following results:

Percentage of Chalk by weight in reconstituted tobacco		Total Particulate Matter	
in Cigarette		per Cigarette in mg	% Reduction
0	0	32.7	0
20	10	32.7	0
40	20	23.0	29.7

Proportions of chalk above 10 percent in the total smoking material in the cigarettes achieve a reduction in the total particulate matter and for proportions of 20 and 25 per cent the reductions are greater than would be expected from the effect of dilution by the filler.

The minimum proportion that will give a disproportionate reduction will depend on the physical nature of the reconstituted tobacco material and its method of manufacture. The maximum proportion will be determined by the requirement that the smoking product, besides being of sufficient mechanical strength for cigarette manufacture, must be combustible. A reconstituted tobacco is to be considered to be "combustible," if a "cigarette" made wholly from it and produced in conventional manner does not require relighting on a majority of puffs when smoked to a 23 mm butt length under standard conditions, i.e., one puff per minute of 35 ml volume and two seconds duration. Thus, if such a cigarette takes a total of 10 puffs to smoke to a 23 mm butt length and does not have to be relit before any six puffs or more of those which are taken, the reconstituted tobacco is combustible.

Other kinds of reconstituted tobacco with which the invention can be employed include that produced by the process described in U.S. Pat. specification No. 3,043,727, sometimes known as processed tobacco leaf, in which process tobacco-parts extracted with hot water and disintegrated are mixed, as binder, with tobacco fines such as lamina or midribs, the particle size of the mixture is reduced and the resultant aqueous tobacco slurry is formed into a continuous sheet and dried on a stainless-steel band.

The chalk was added together with the tobacco fines to the binder prepared from the water-extracted tobacco parts.

Results obtained with reconstituted tobacco of this kind are tabulated below, the weight of the cigarettes in this case being $1,250 \pm 50$ mg.

Composition %		Pressure Drop (mm Water Gauge)	Total Particulate Matter per cigarette in mg	% Reduction
Tobacco %	Filler %			
100	0	50-60	37.7	0
90	10	40-60	31.7	15.9
80	20	25-40	26.1	30.7
60	40	25-35	20.0	46.9

It will be seen that substantial advantages were obtained from the application of the invention, using various kinds of reconstituted tobacco compositions and processes and cigarette weights. The smoke from cigarettes produced as described above was found to be agreeable.

We claim:

1. A reconstituted tobacco product having a base of ground tobacco and an impregnation of calcium carbonate therein, the calcium carbonate constituting at least 14.6 percent of the reconstituted tobacco product, said calcium carbonate being added in particulate form and having a particle size of less than 150 microns, the adhesion between the carbonate additive and the tobacco being effected by substance released from the tobacco during slurring.

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